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neously called 'tidal waves,' by which vessels are overwhelmed on the open ocean. C. E. Stromeyer gives brief account of some examples in *Nature* (li., 1895, 437), describing them as strong enough to carry masts and funnels by the board, and to smash bulwarks, lifeboats and deck houses. He suggests that the waves may be due to volcanic action in the submarine bank known as the Faraday reef, northeast of Newfoundland, for in a number of cases the course of the waves is away from the reef. The same subject is continued by W. Alingham in the (London) *Nautical Magazine* (lxiv., 1895, 539-545), many examples being given. The *Vancouver*, of the Dominion line, was badly mauled by a solitary sea while crossing the North Atlantic in 1890. The *Holyrood*, in June, 1892, 20°N, 35°W, encountered a solitary sea which looked like a wall of water as it approached; it flooded the decks, but before and after this sea broke, the water was comparatively smooth under a light northeast trade wind. The *St. Denis*, New York to Yokohama, in September, 1893, 28° S, 8° E, was boarded by a solitary sea which swept her decks and carried away three seamen. The *Normannia*, 750 miles out from New York, January, 1894, suddenly encountered a sea 'running masthead high,' submerging the vessel up to her bridge, and doing great damage.

Similar phenomena of smaller dimensions are reported on our great lakes. So little is known of them that no satisfactory explanation of their occurrence can be at present adopted.

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#### TYPES OF LOWLAND COASTS.

As the opening paper to the Richthofen Jubilee volume (*Festschrift Ferdinand Freiherrn von Richthofen, von seinen Schülern*. Berlin, 1893), Dr. Alfred Philippson, of Bonn, contributed a discussion of

type forms of coasts, particularly of alluvial coasts (*Über die Typen der Küstenformen, insbesondere der Schwemmlandküsten*).

Under 'die cüste' he includes a zone on either side of the shoreline. He describes as 'Isohypsensküsten' those coastal forms which have been produced by the various constructional processes, such as deformation, depression of land, uplift of sea bottom, volcanic and glacial aggradation. These forms vary so greatly that one can make of them as many types as one pleases.

The present writer prefers to call this class of shore forms 'Constructional,' for in cases of tilted or warped crustal movement the new shoreline does not coincide with a former contour (Isophypse). Philippson recognizes that development must follow the constructional stage, and coastal irregularity from differential marine erosion is therefore explained, and the minute forms of beach profile are illustrated with five diagrams. He amplifies with illustrations his terms, potamogenous or river-made and thalassogenous or sea-made coasts, first introduced in connection with his work on Greece.\* Though he introduces the idea of systematic change in the geographic form of coasts, as in 'incompletely potamogenous' and 'completely potamogenous' alluvial coasts, he does not fully carry out this idea and make a systematic account of all successive stages of development. It would make the comprehension of the various forms of coasts much easier to introduce the terms already applied to land forms and speak of a coast as young, adolescent or mature.

F. P. G.

#### CURRENT NOTES ON ANTHROPOLOGY.

##### SKIN PAINTING IN SOUTH AMERICA.

At the last session of the Italian Geographical Congress, an interesting paper was read by Guido Boggiani, on the supposed tattoo marks on Peruvian mummies.

\* Peloponnes, Berlin, 1892, p. 509.

Various authors (Virchow, Danielli, Joest) have spoken of these colored decorative marks as true tattooing. Boggiani, however, by a closer examination of them, reaches the opinion that they are paintings. The materials used are various, as ferrous oxide, cinnabar and the juice of the *Bixa orellana*; but that which produces the peculiar tattoo-like appearance is the juice of the *Genipa oblongifolia*, a sort of indigo fluid, blue at first and turning black on exposure. It has a slight corrosive action on the skin, attacking the tissues of the epidermis, and thus gives to the marks which it leaves singular permanency, and the appearance of tattoo cicatrices.

The article of Boggiani is well illustrated, and is conclusive in establishing the prevalence throughout large areas in South America of the use of this plant.

#### ÆSOP IN AZTEC.

NATIVE Mexican, that is, Nahuatl or Aztec literature, is increasing to a respectable extent. Scarcely a year passes that some product of the printing press appears in this ancient and rich language. One of the latest is the Fables of Æsop, published by Dr. Antonio Peñafiel, from a sixteenth century translation. It is a pamphlet of 37 pages on good paper and in clear type.

No certainty has been reached as to the translator. It may have been Father Sahagun, but I am inclined to Father Bautista or some of his associates in the college at Tlatelolco, where the native youth were instructed in humanities and religion. It was probably intended as a reading book for them, and the forty-seven fables it contains, rendered into the Nahuatl of that early day, may still be followed as models of grammatical purity.

#### THE READING OF QUIPUS.

It is well known that the ancient Peruvians had a method of preserving their records by means of strings, varied in hue,

of different lengths and texture, and knotted in sundry designs. The early historians offer no clear explanation of them, and differ widely in estimates of their value as records of facts and ideas. They were called *quipus*—cords.

It appears that they are still in use, and Dr. Uhle, in the *Ethnologisches Notizblatt*, of the Museum of Ethnography, Berlin (Heft 2, 1895), explains several which he found among the shepherds about Lake Titicaca. They relate to the animals under their care. The color indicates the sex, or some other special series. The system is decimal, the position indicating the tens and hundreds. Those examined proved to be merely mnemonic aids, based chiefly on arithmetic ideas, and apart from these unintelligible by themselves. Doubtless the ancient *quipu* readers extended their use to all the needs of life in this direction, but their principles of interpretation must have been the same.

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#### SCIENTIFIC NOTES AND NEWS.

##### ASTRONOMICAL.

THERE are numerous cases in astronomical literature where astronomers have rejected certain observations because they did not agree with their own. But it is really not often that we find an astronomer gravely rejecting an observation simply because it *did* agree with his own. In one of his recent double star orbit discussions, Dr. See, of Chicago, omitted to use certain observations of Prof. Knorre. Dr. Brendel objected to this omission on the part of Dr. See, in a recent number of the *Astronomical Journal*. Now Dr. See replies, in the same journal, that he omitted Prof. Knorre's results because they were nearly identical with his own! But Dr. See's reputation as an astronomer is so good that we fear he will really have to find a better reason for rejecting observations than the mere fact of their agreement with his own. The whole thing looks like a comedy of errors to which the present note will perhaps add a final amusing scene. . H. J.